

STATE OF CALIFORNIA
Budget Change Proposal - Cover Sheet
DF-46 (REV 08/15)

Fiscal Year 2016/17	Business Unit 3360	Department California Energy Commission	Priority No.
Budget Request Name 3360-003-BCP-DP-2016-A1		Program REGULATORY AND PLANNING	Subprogram ELECTRICITY ANALYSIS

Budget Request Description
Aliso Canyon: Natural Gas – Electricity System Interactions and Grid Reliability

Budget Request Summary

This proposal requests baseline authority for three permanent positions, one-time contract funds of \$1,000,000 for technical assistance, and ongoing contract funds of \$150,000, for a total request of \$1,739,000 from the Public Interest Research, Development, and Demonstration Fund to improve the Energy Commission's technical ability to monitor, model, and analyze the interaction of California's electricity and natural gas systems for grid reliability. This includes pipeline and system dispatch modeling, underground storage operations, forward price monitoring and financial risk assessment, and relationships between weather and gas balances as they influence electric reliability. It will allow the Energy Commission to fulfill its reliability contingency planning authority for the natural gas system as it has for the electricity system. Authority for a two-year encumbrance period for the one-time technical assistance funds is also requested.

This proposal also requests trailer bill language (TBL) that repeals the annual fund transfer of \$10 million from the Public Interest Research, Development, and Demonstration Fund to the Alternative and Renewable Fuel and Vehicle Technology Fund authorized by Health and Safety Code Section 44273.

Requires Legislation <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Code Section(s) to be Added/Amended/Repealed Health and Safety Code Section 44273	
Does this BCP contain information technology (IT) Components? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <i>If yes, departmental Chief Information Officer must sign.</i>	Department CIO	Date

For IT requests, specify the date a Special Project Report (SPR) or Feasibility Study Report (FSR) was approved by the Department of Technology, or previously by the Department of Finance.

☐ FSR ☐ SPR Project No. Date:

If proposal affects another department, does other department concur with proposal? ☐ Yes ☐ No
Attach comments of affected department, signed and dated by the department director or designee.

Prepared By	Date	Reviewed By <i>MWair</i>	Date <i>3/24/16</i>
Department Director <i>[Signature]</i>	Date <i>3-24-16</i>	Agency Secretary <i>[Signature]</i>	Date <i>3/24/16</i>

Department of Finance Use Only

Additional Review: ☐ Capital Outlay ☐ ITCU ☐ FSCU ☐ OSAE ☐ CALSTARS ☐ Dept. of Technology

BCP Type: ☐ Policy ☐ Workload Budget per Government Code 13308.05

PPBA	Original Signed By: Ellen Moratti	Date submitted to the Legislature APR 01 REC'D
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A. Budget Request Summary

This proposal requests baseline authority for three permanent positions, one-time contract funds of \$1,000,000 for technical assistance, and ongoing contract funds of \$150,000, for a total request of \$1,739,000 from the Public Interest Research, Development, and Demonstration (PIER) Fund to improve the Energy Commission's technical ability to monitor, model, and analyze the interaction of California's electricity and natural gas systems for grid reliability. This includes pipeline and system dispatch modeling, underground storage operations, forward price monitoring and financial risk assessment, and relationships between weather and gas balances as they influence electric reliability. It will allow the Energy Commission to fulfill its reliability contingency planning authority for the natural gas system as it has for the electricity system. Authority for a two-year encumbrance period for the one-time technical assistance funds is also requested.

This proposal also requests trailer bill language (TBL) that repeals the annual fund transfer of \$10 million from the PIER Fund to the Alternative and Renewable Fuel and Vehicle Technology (ARFVT) Fund authorized by Health and Safety Code Section 44273.

B. Background/History

The natural gas system in California requires the use of both supplies delivered into its gas transmission pipelines and supplies drawn from storage to meet demand, including demand for electricity generation. Underground storage of natural gas plays a vital role in balancing California's demand requirements with supply availability. California has 14 natural gas storage facilities: four owned by Southern California Gas, three by Pacific Gas and Electric; and seven by independent operators. The 14 storage facilities have a working gas capacity of roughly 374 billion cubic feet (Bcf) and a maximum daily delivery of 8.5 Bcf for customer uses, such as space and water heating, and power generation. The Southern California gas system is particularly dependent on storage to maintain operations and meet peak natural gas demand.

More than 90 percent of the supply originates outside of California from production basins in Texas, New Mexico, and the Rocky Mountains. Gas from these basins is delivered via interstate pipelines into the backbone (high pressure) gas transmission system of California's gas utilities. This "flowing" supply is used to serve customer demand or injected into storage where it is kept for use at a later time. Unlike electrons, pipeline gas flows between 20 and 30 miles per hour, depending on the operating pressure of the system. Storage gas is used when the demand exceeds the flowing supplies on a system-wide basis. Storage gas is also used to meet the rapid response requirements of gas-fired electric generating plants or when pipeline maintenance or repairs restrict the availability of flowing supply.

Southern California Gas' system-wide demand is highest in the winter months, reflecting higher use for heating, and declines in the summer months with a smaller peak when natural gas-fired generation is needed for air conditioning. The system is designed to use a combination of flowing supply and storage gas to meet this seasonal variation in overall demand. The system is also designed to standards that allow it to meet a defined level of peak demand that may occur on particularly cold or warm days. When these extreme days occur, the weather driving them is not typically limited to Southern California, but is regional. Consequently, competition for flowing supplies into California increases and, in some cases, may not be available due to cold weather farther east creating price differences, pipelines connectors freezing, and other events. Under these circumstances, storage is used to meet higher gas demand.

On October 23, 2015, one of 115 wells in the Southern California Gas storage field at Aliso Canyon began leaking. This is one of four storage facilities operated by the utility in the Los Angeles Basin, three times as large as the other three fields combined. Repeated attempts to stop the leak by plugging the well failed. Efforts to dig a relief well succeeded in stopping the leak on February 23, 2016. The environmental, health, and social costs of the leak are larger than any recent energy-related event. In the effort to stop the leak and reduce the release of the greenhouse gas methane, the California Public Utilities Commission (CPUC) has ordered the natural gas inventory stored in the field to be reduced considerably, from 86 Bcf to roughly 15 Bcf, and receive no new injections of gas.

While this pressure reduction has significantly reduced methane leakage from the well, the ability to withdraw gas to meet demand is impacted by low inventory levels. As inventory declines, storage

withdrawal capability declines and at some point, Southern California Gas will not be able to withdraw enough gas to make up expected differences between flowing gas supply and demand, or to meet hourly changes in gas demand within the Los Angeles Basin. Either of these two events would disrupt gas deliveries to customers, jeopardize safe operations, and could disrupt California's economy. Gas customers are divided into core and non-core categories. Residential and business customers are considered core; deliveries would be curtailed to these customers only in the most extreme events. Non-core customers include industrial uses, refineries, hospitals, and electric generators. When gas supplies are short, non-core customers are curtailed first. Electric generators are among those who would experience curtailments, thus impacting electric reliability, especially in periods of hot summer weather when air conditioning loads are high. Curtailments periodically occur, usually from weather factors affecting gas supplies or outages affecting pipeline capacity.

Aliso Canyon is an integral part of the gas system in the Los Angeles Basin, directly providing gas to roughly 11 million consumers and businesses in Southern California and providing more general support to Southern California Gas' 21 million gas customers. Natural gas is a fuel used for electricity generation, so circumstances that affect natural gas supplies and prices will also affect the electricity system. There are 18 gas-fired electric generators located in the Los Angeles Basin, totaling almost 10,000 MW, many used to meet cooling demand on particularly hot days. These generating facilities are owned or operated by Los Angeles Department of Water and Power, Southern California Edison, and numerous municipal utilities. Gas delivered into the Los Angeles Basin is limited by pipeline capacity and the speed at which gas moves. Aliso Canyon is the only supply source available to quickly respond to demand from electric generators on very hot days.

The Energy Commission is currently using an existing technical support contract to provide the technical expertise being requested by the Governor's Office, with reassignment of one existing PY to provide assistance. Current staff assigned to natural gas responsibilities are providing support by monitoring news reports and doing assigned research, but do not have the type of highly technical modeling expertise, sufficient natural gas working knowledge of underground storage or the interactions of electricity and natural gas demand and supply.

PIER and ARFVT Funds

Senate Bill 90 (Sher, Chapter 905, Statutes of 1997) created the PIER Fund and authorized funds to be transferred to the Energy Commission for purposes of public interest research, development and demonstration. The statutory authority to collect funding for the PIER program sunset on January 1, 2012.

Assembly Bill 118 (Nunez, Chapter 750, Statutes of 2007) created the ARFVT program and also authorized the transfer of \$10 million annually from the PIER Fund to the ARFVT Fund.

C. State Level Considerations

The Energy Commission, CPUC, and California Independent System Operator (CAISO) work collaboratively to ensure that adequate, reliable, environmentally friendly, and reasonably-priced electrical power, natural gas supplies, and transmission resources are available for California's consumers and taxpayers. The Energy Commission also has statutory responsibility for contingency planning in the event of shortages of electrical energy or fuel supplies (Public Resources Code §25700). In addition, Senate Bill 1389 (Bowen, Chapter 568, Statutes of 2002) initiated the biennial Integrated Energy Policy Report (IEPR) that contains an integrated assessment of major energy trends and issues facing the state's electricity, natural gas, and transportation fuel sectors and provides policy recommendations to conserve resources, protect the environment; ensure reliable, secure, and diverse energy supplies; enhance the state's economy; and protect public health and safety (Public Resources Code §25301[a]).

The *IEPR* proceeding brings together a wide variety of energy stakeholders in a transparent and public process to develop balanced energy policies and also ensures the use of consistent assumptions across the electricity, natural gas, and transportation sectors and considers cross-sector effects. Furthermore, the CPUC, California Air Resources Board (CARB), and CAISO are directed by statute to

"carry out their energy-related duties and responsibilities based upon the information and analyses contained in the [IEPR] report."

The same agencies are engaged in the Southern California Reliability Project, ensuring that adequate electric resources are available in the Los Angeles Basin and San Diego following the unexpected loss of the San Onofre Nuclear Generating plant. The Energy Commission took the lead in preparing a series of contingency option plans.

The Energy Commission, CPUC, and CAISO, along with Southern California Gas, have formed an Aliso Canyon Reliability Task Force to identify actions to reduce gas and electric reliability risk. The Energy Commission is heading up coordination between CAISO and the Los Angeles Department of Water and Power. The CPUC and Energy Commission are analyzing solutions to reduce gas demand in the Los Angeles Basin (efficiency, demand response, fuel switching) and exploring rule changes for ensuring maximum pipeline deliveries. CAISO is assessing changes to operations of gas-fired plants in the Los Angeles Basin.

D. Justification

On January 6, 2016, Governor Edmund G. Brown Jr. issued an Emergency Proclamation related to the gas leak from the Aliso Canyon gas storage facility. The Proclamation called on the Energy Commission, CPUC, and CAISO to work together and "take all actions necessary to ensure the continued reliability of natural gas and electric supplies during the moratorium on gas injections into Aliso Canyon." The most immediate issue is maintaining gas system reliability for core customers for the rest of the winter. The next concern is electric system reliability for this summer, and both gas and electric system reliability for next winter and beyond in the event injections into Aliso Canyon cannot resume.

The nexus between the gas and power systems in the Los Angeles Basin is a complex problem to assess because of the constraints on gas deliveries, rapid changes in electricity demand that occur every day, and electric transmission constraints that limit electricity imports into the area. There is good reason to be concerned that reliability of supply may be critical for electric generators in the Los Angeles Basin, particularly those serving Los Angeles Department of Water and Power. This problem could be compounded for the state as a whole as greater scrutiny is given to all natural gas pipeline systems and underground storage facilities serving California.

Historically, reliability planning in the electric sector focused on the adequacy of the generation fleet's capability to meet peak electric demands. Utility planning reserve margin targets typically ensure that sufficient generating capacity is available throughout the year to provide a minimal risk of loss of load for customers. These traditional reserve margins are typically indifferent to the type of resource capacity used – inflexible baseload resources that run most of the time and flexible peaking resources called on only now and then and treat them equally in planning.

With the expansion of renewable generation, the scope of electric reliability planning is beginning to address not only whether the capacity of a generation fleet is sufficient to meet its peak demands, but whether that same fleet has sufficient operational flexibility to meet the ramping needs and reserve requirements associated with a growing fleet of renewable resources. Flexibility offered by a resource provides a premium for its value to system reliability. New gas-fired generation resources are trending toward technologies with faster ramping rates (moving up or down to match system needs and shorter start times).

The timely delivery of natural gas to these plants is a prerequisite to their ability to provide the flexibility desired by electric system operators. As the electric sector must maintain an instantaneous balance between supply and demand, understanding the limitations of gas infrastructure is crucial to making investment decisions and using operational strategies to integrate high amounts of renewables that are effective at protecting electric ratepayers against curtailments or service interruptions.

The Energy Commission's current natural gas modeling tools and technical analytical capabilities are inadequate for addressing these increasingly important electric-natural gas interactions. The North American Gas Trade Model is a general equilibrium model that uses annual time points to specify a forecast horizon of 10 to 20 years. It looks at year-to-year variations and generates only annual values of demand, supply, prices, and price differentials. This limits staff's ability to use this modeling tool for short-term analysis, for example, the behavior of natural gas storage in California. The model cannot capture, nor address, the dynamics of changes within a year. Staff had made efforts to build a monthly model that would improve the situation; however, this work is on hold and would most likely not be sufficiently granular to assess short-term gas system operations.

Given the increasingly complex energy situation in Southern California with the loss of both San Onofre and the major natural gas storage field in jeopardy of being lost or compromised for years to come, the Energy Commission must add new resources and new technical capabilities to address reliability issues. The electric and natural gas systems can no longer be studied in isolation from each other.

The Energy Commission requires two new forms of modeling expertise to be added. Hydraulic pipeline modeling would enable staff to understand pipeline design, methane leak volume on transmission and distribution, underground storage, assess pipeline infrastructure, and monitor gas operations from an engineering perspective. Currently, the gas utilities are doing this sort of modeling and the Energy Commission has no independent ability to verify or replicate the results. Having this capability in-house would allow the Energy Commission to do independent analysis or analysis that may be different from utility business interests. To complement this from the electrical side, electrical engineering expertise with power flow modeling is needed. The Energy Commission has been using contracting resources to do this for many years and now needs to bring this capability in-house. The Energy Commission will not be able to meet its contingency planning obligations without bringing the ability to identify feasible mitigation measures, test them, and make selections in-house.

Additional expertise is also needed for monitoring natural gas and electricity spot prices, forward prices, and basis swaps over different time horizons. Basic financial risk management principles and hedging strategies are fundamental to understanding market developments and weather impacts. There is a much greater need to be proactive instead of reactive to events that often are foreshadowed if market behavior is studied carefully.

The requested classifications consist of:

- 1 Electric Generation System Program Specialist II to provide the highest level subject expertise to oversee this new work in the electricity and natural gas sectors, undertake the financial risk management assessment, prepare written reports based on the modeling work, and interact with the Energy Commission's Executive Office, Commissioners, and Governor's Office.
- 1 Senior Oil and Gas Engineer (Specialist) to undertake the hydraulic modeling of the gas utilities' systems to assess short-term operational conditions and the risks posed to those systems, and assist in developing contingency plans to maintain gas reliability for end-use customer demand and electricity generation.
- 1 Senior Electrical Engineer to undertake the power flow modeling. This engineer will also interact with the Senior Oil and Gas Engineer (Specialist) in areas needed to assess the extent to which existing electricity import capability can help make up gas-fired generation that may be lost due to gas curtailments and otherwise assist in developing contingency plans needed to preserve electric service reliability.

Additional data subscriptions are needed to access timely pricing information and broader natural gas market information. Licenses for a hydraulic model and a power flow model are also required. One-time contract funding for technical assistance is required to provide a training and transition period for the permanent new staff and allow the current natural gas staff to build and incorporate new skills.

This augmentation of skills and capability will allow the Energy Commission to fully deploy its contingency planning authority to the natural gas sector, as it has in the electricity sector. It is no longer reasonable to see natural gas and electricity as two separate and distinct realms. Moving toward the Governor's greenhouse goals anticipates significant changes in how electricity is generated. The goal of a full renewable system is a worthy goal, but we must also understand the long-term role and viability of natural gas in our state's electric and thermal system. Only by fully understanding the interactions and dependencies between natural gas and electricity will California be prepared to continue as an environmental leader and react appropriately to unexpected energy-related events, thereby ensuring our economy grows with "reliable, secure, and diverse energy supplies."

Proposed TBL for Health and Safety Code Section 44273

AB 118 established an annual \$10 million transfer from the PIER Fund to the ARFVT Fund. With the sunset of PIER revenue collections on January 1, 2012, the PIER fund balance has declined to the point where it can no longer sustain an annual \$10 million transfer to the ARFVT Fund. The PIER Fund is projected to have a fund balance of approximately \$9 million in fiscal year (FY) 2016/17. TBL amendments are needed to repeal the transfer of PIER funds to avoid over-transferring funds or negating a transfer of available funds that are proposed to fund this proposal. The following amendments are proposed for Health and Safety Code Section 44273:

~~(b) Notwithstanding any other provision of law, the sum of ten million dollars (\$10,000,000) shall be transferred annually from the Public Interest Research, Development, and Demonstration Fund created by Section 384 of the Public Utilities Code to the Alternative and Renewable Fuel and Vehicle Technology Fund. Prior to the award of any funds from this source, the commission shall make a determination that the proposed project will provide benefits to electric or natural gas ratepayers based upon the commission's adopted criteria.--~~

E. Outcomes and Accountability

The authorized positions will be established in the Energy Assessments Division in the appropriate office according to the Energy Commission's recruitment and hiring policies for the work detailed here. Expenditures will be accounted for in workplans and approved by the Executive Director and the Lead Commissioner for Electricity and Natural Gas.

Periodic progress reports to keep supervisors, management, Commissioners, and the Executive Office informed about tasks, milestones, and analytical results will occur. With Commissioner and Executive Office concurrence, staff will present information to the Governor's Office or Legislature as requested.

F. Analysis of All Feasible Alternatives

Alternative 1: Do nothing

If no additional staff or contract funding are approved, the Energy Commission's existing staff will be unable to provide sufficient and timely support for the Governor's Office and the other agencies in providing energy reliability solutions that stem from the Aliso Canyon leak and the ongoing consequences of this unexpected event.

If TBL amendments are not approved and the transfer language is left as-is, an incorrect transfer of funds from the PIER Fund to the ARFVT Fund will occur and this proposal will be left unfunded.

Alternative 2: Approve the requested resources and TBL

Approve three permanent positions, one-time contract funds of \$1,000,000 for technical assistance, and \$150,000 in ongoing contract funds for data resources. If these additional staff and funding are provided, the Energy Commission will have the resources to: 1) take actions to improve shorter-term

natural gas modeling capability; 2) provide reliability planning expertise to ensure effective interactions between natural gas and electric supplies; and 3) achieve comprehensive solutions for both investor-owned and publicly owned electricity and gas utilities. Approve a two-year encumbrance period for the one-time technical assistance funds.

Approve the TBL to ensure the annual transfer of \$10 million from the PIER Fund to the ARFVT Fund is repealed and these funds can be used to support this proposal.

Alternative 3: Redirect existing Energy Commission staff

Existing resources within the Energy Commission are fully engaged in carrying out requirements for 10-year natural gas outlooks and trends for the Integrated Energy Policy Report. The re-assigned PY would have to stop working on San Onofre reliability and once-through cooling issues. In addition, existing staff do not possess the necessary technical skills to effectively respond to and plan for electric and gas reliability in the state.

G. Implementation Plan

1. Recruit and hire staff. (July 2016)
2. Secure additional data subscriptions and other data sources. (July 2016)
3. Solicit proposals for contractor expertise. (July 2016)
4. Training and development in new modeling expertise. (September 2016- June 2017)
5. Begin new modeling and analysis. (September 2016)
6. Complete longer-term contingency plans. (July 2017)

H. Supplemental Information

None.

I. Recommendation

Alternative 2 – approve three permanent positions, \$1,000,000 in one-time contract funds for technical assistance, and \$150,000 in ongoing contract funds to improve the Energy Commission's technical ability to monitor, model, and analyze the interaction of California's electricity and natural gas systems for grid reliability. Approve a two-year encumbrance period for the one-time technical assistance funds.

Approve TBL language that repeals the annual fund transfer of \$10 million from the PIER Fund to the ARFVT Fund.

Department of Finance
2016-17
Finance Letter Worksheet

3360-001-0381-2016

DEPT: Energy Resources Conservation and
Development Commission
STATE OPERATIONS

Prop 98: N

3360-102-BCP-BR-2016-A1

Aliso Canyon: Natural Gas - Electricity System Interactions and Grid
Reliability

Proposal Summary

Add resources to support the Energy Commission in addressing
natural gas reliability in the wake of the closure of the Aliso
Canyon Underground Storage Facility.

Category Changes

	Positions	Whole Dollars
Salaries and Wages	3.0	362,000
Staff Benefits	0.0	155,000
Operating Expenses and Equipment	0.0	1,222,000
Total Category Changes	3.0	\$1,739,000

Program Changes

2380 Regulatory and Planning	3.0	1,739,000
2380019 Electricity Analysis	3.0	1,739,000
Total Program Changes	3.0	\$1,739,000

Fund Changes

Amount Funded by 3360-001-0381-2016	3.0	1,739,000
Net Impact to Item	3.0	\$1,739,000

ASM CONSULTANT: CG

SEN CONSULTANT: CBF

DOF ANALYST: Kathy Madison

LAO DIRECTOR: BB

SCENARIO: April Revision

VERSION: Finance Working

RUN DATE: Mar 24, 2016 11:17 AM

Natural Gas - Electricity System Interactions and Grid Reliability	Electric Generation System Program Specialist II	Senior Oil and Gas Engineer	Senior Electrical Engineer
ENERGY ASSESSMENTS DIVISION			
Improving Natural Gas and Assessments			
Work with staff to develop new methods for natural gas hydraulic and electricity power flow modeling; review and select appropriate models and undertake contingency planning.	80	80	80
Review existing research and conduct research and analysis to stay current with changes in natural gas and electricity infrastructure, including underground storage operations.		80	80
Develop adjustments and evaluate findings from market conditions and existing baselines monitoring. Use to develop test cases for modeling.		80	80
Monitor natural gas prices and financial risk assessment metrics.	80		
Develop, maintain, and modify policies/protocols to safeguard data.	80	40	40
Secure agreements for access to proprietary or confidential data.	80		
Monitor data security compliance and ensure all data is appropriately recorded, approved, and handled.	20	80	80
Develop base case and assumptions for modeling runs.		200	200
Run models to test various variables and assumptions for different scenarios.		300	300
Coordinate with other modeling units in Energy Assessments Division for input and technical review.		40	40
Review and analyze results and make modifications as necessary.		100	100
Review and vet modeling results from utilities and other agencies.		100	100
Provide regular reports and briefings to management and Governor.	40	40	40
Policy and Reliability Planning			
Scope technical and analytical work. Develop study plans.	200	80	80
Develop and implement methodologies for evaluating the effectiveness, scope, and final impacts of modeling work to be certain reliability planning needs are met.	200		
Ensure proper collection of data on electricity and natural gas interactions occurs and is made available for modeling purposes.		80	80
Develop and implement a methodology to match data with new modeling efforts and other technical analytical tasks.	100		
Validate methodology proposed by modelers.	80		
Evaluate interagency baseline assessments and work with CPUC staff and other stakeholders to ensure baseline methodology reflects and incorporates adequate information for use in the demand forecast impacts assessments and determination of adjustments.	150		
Gain consensus and consistency between agencies for modeling and planning functions for all contingency plan development.	100		
Management			
Provide technical expertise for a public process to review results and potential policy changes.	150		
Provide communication to stakeholders and participate in meetings regarding the integration of policy and program impacts on demand forecasts.	100	100	100
Guide the interaction of electricity and natural gas system modeling, convene meetings with modelers to strategize about modifications, and monitor updates and modifications in the context of IEPR and analytical responsibilities.	50	150	150
Ensure alignment with federal, state, and other local regulations.	40		
Represent the Energy Commission in interagency dialogues with national labs, think tanks, DOE, EPA, utilities and local jurisdictions; ensure that collected data and infrastructure are leveraged by other agencies.	40		
Communication and Outreach			
Coordinate meetings of reliability planners at other agencies.	40	20	20
Meet and coordinate development of adjustments with agency staff and other stakeholders.	40	60	60
Attend Lead meetings and perform briefings as necessary	80	80	80
Lead workshops to present results, findings, and plans.	40		
Participate in public workshops, present material, answer stakeholder questions, and address issues.	20	80	80
TOTAL STAFF HOURS	1,810	1,790	1,790
STAFF PY @ 1,776 Hours/PY	1.0	1.0	1.0

ENERGY ASSESSMENTS DIVISION

Current and
Proposed FY 16/17

Supply Analysis Office

- o ERS III (M)
- o OT
- o OT
- o EGSPS I
- o EGSPS I

Natural Gas Unit

- o EGSS III
- o SR OIL & GAS ENGINEER PROPOSED 16/17
- o SR ELECTRICAL ENGINEER PROPOSED 16/17
- o Engineering Geologist
- o Spec I
- o EGSS I
- o EGSS I
- o Energy Analyst

Procurement and Modeling Unit

- o EGSS III
- o EGSPS I
- o EGSS I
- o EGSS I
- o EGSS II
- o EGSS I
- o EGSS I
- o EGSS I
- o EGSS I

Distributed Generation Integration Unit

- o EGSS III
- o EGSPS II
- o EGSS I
- o EGSS I
- o EGSS I
- o EGSS I
- o Energy Analyst

Transportation Fuels Data Unit

- o Sup II (FO)
- o AAESI
- o ECS I (FO)
- o ECS II (FO)
- o ECS I (FO)
- o AES (FO)
- o Energy Analyst
- o Energy Analyst
- o Energy Analyst

Administration

- o Deputy Director
- o Executive Asst
- o EGSPS III
- o EGSPS III
- o EGSPS II
- o EGSPS II
- o EGSPS II PROPOSED 16/17
- o ETSPS I
- o Research Spec IV
- o Spec III (FO)
- o AGPA

Demand Analysis Office

Administration Unit

- o ERS III (M)
- o Sr. Mech Engr
- o Sr. Mech Engr
- o Research Specialist III
- o ECS III (FO)
- o ECS III (FO)
- o ECS III (FO)
- o OT

Demand Forecasting Unit

- o EC Sup II (FO)
- o ECS II (FO)
- o ECS II (FO)
- o ECS I (FO)
- o ECS I (FO)
- o ECS I (FO)
- o AES (FO)
- o AES (FO)
- o Energy Analyst

Data Collection Unit

- o EC Sup II (FO)
- o ECS II (FO)
- o ECS I (FO)
- o ECS I (FO)
- o ECS I (FO)
- o ECS I (FO)
- o EGSS I
- o AES (FO)
- o AES (FO)
- o Mgt Svs Tech

Data Analysis and Survey Unit

- o EC Sup II (FO)
- o ECS II (FO)
- o R Prog Spec II
- o R Prog Spec I (GIS)
- o ECS II (FO)
- o ECS I
- o Mechanical Engineer

Transportation Energy Forecasting Unit

- o EC Sup II (FO)
- o ECS II (FO)
- o ECS I (FO)
- o ECS I (FO)
- o ECS I (FO)
- o Energy Analyst
- o Energy Analyst